Proc. NIPR Symp. Antarct. Geosci., 5, 160, 1991

VECTOR ANOMALIES OF THE GEOMAGNETIC FIELD AROUND THE KERGUELEN PLATEAU (ABSTRACT)

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The directions of two-dimensional magnetic structures around the Kerguelen Plateau were determined by using vector anomalies of the geomagnetic field obtained during the 30th and 31st Japanese Antarctic Research Expeditions.

N-S and E-W directions of magnetic structure are deduced in the basin to the east (around 60°S, 88–91°E) and over (around 60°S, 71–88°E) the Kerguelen Plateau. Topographic and structural lineaments bring about N-S and E-W directions of magnetic anomaly lineations over the Kerguelen Plateau.

In farther east (around 59°S, east from 91°E), stable NW-SE directions are obtained. The obtained stable NW-SE directions are in good agreement with the already identified geomagnetic anomaly lineations originated from the Southeast Indian Ridge (WEISSEL and HAYES: Antarct. Res. Ser., Vol. 19, Am. Geophys. Union, 165, 1972).

Stable NE-SW directions in the west (58–61°S, 62–68°E) of the Kerguelen Plateau were newly found in this expedition. Because sea bottom topography and free-air gravity anomalies show no structural offset, stable NE-SW directions are due to the geomagnetic anomaly lineations produced by polarity reversals.

NE-SW directions obtained from vector anomalies of the geomagnetic field support presumptive directions of the geomagnetic anomaly lineations originated from an ancient abandoned ridge, that is, the mid-ocean ridge between India and Antarctica from Late Jurassic (160 Ma) to Middle Cretaceous (96 Ma) (POWELL *et al.*: Tectonophysics, **155**, 261, 1988). These results may provide detailed kinematics of the growth of the Indian Ocean.

(Received February 26, 1991; Revised manuscript received May 28, 1991)